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FARM DEMONSTRATION MONTHLY.

U. S. DEPARTMENT OF AGRICULTURE,

STATES RELATIONS SERVICE.

Office of Extension Work, North and West.

No. 16. MARCH, 1916.

THE ANNUAL REPORT.

The annual reports of the county agents were submitted this year with gratifying promptness. Several of the States had a complete quota of reports in this office on January 6. Nearness to Washington does not appear to be a factor of any particular importance, as some of the far Western States are on the roll of honor. Only six agents were delinquent in their reports on February 1. Not only were the reports sent in promptly, but many of them were of a very high order and showed great care in their preparation. Apparently many agents overlooked the little note at the end of the report blank, asking for written reports covering their various projects. Only 183 agents out of a total of 370 reporting sent in a narrative report. Perhaps the note at the end of the blank should have been moved up in front, for, after all, the narrative report is much the most important part of the annual report. The tabular matter is at best only a summary of that part of the work of the agent which lends itself to tabulation, and summaries are usually unsatisfactory without an accompanying explanation. A number of the agents illustrated their reports with photographs and elaborated their projects fully, both as to results secured and methods of demonstration. Such reports have unusual value. The pages of the report relating to demonstrations have in some cases been a disappointment. If the reports are to be accepted at face value, in these cases there has been no demonstration work at all conducted. Such we know is not the case. These deficient reports themselves indicate that demonstration work is under way, and the fact that this part of the blank was not filled out indicates one or two things very clearly: First, that the agent did not have well-matured plans, that his work was more of the "country doctor" type; or that no adequate record was kept of the work performed. Under such conditions a complete and satisfactory report of the year's work is impossible. A report that is not based on full and complete office records is unsatisfactory both to the agent who makes it and the public for whom it is made. Such items as "a few," "many," "score," "quite general," etc., do not indicate accuracy, nor do these expressions convey information of value to the agencies supporting the work. Properly organized projects and carefully kept records not only make reporting easy, but also accurate, and, on the testimony of some of the busiest and most effective agents, a satisfaction and pleasure. It is a real joy to tell the glory of accomplishment. Several county agents have had their reports printed in circular form for distribution within their county. This is a good thing to do. While the agent will be known by his works, he should not "keep his light under a bushel."

What is said of the county agents' reports applies also to the report of the State leader. A tabulated summary of the report of the agents is valuable, as it shows the estimate of these reports by the State leader, but vastly more important is the narrative report giving the State leader's interpretation of the reports of the agents and discussion of the general progress of the work and its future development. The annual report of the State leader should usually be of such a nature that it can be published as a circular or bulletin of the extension department of the college.

"YOU HAVE MADE ME THINK."

A member of the agricultural extension staff, waiting for a train in a little prairie depot in western Minnesota, fell into conversation with a farmer from another State. The extension man was interested in farm management; the farmer was interested in his farm; naturally the conversation turned to the farmer's own place and the methods in use in his locality. In an effort to get a clear insight into the situation they outlined the year's business in detail, with the inventories, the receipts and expenses, the labor and the capital, each standing in its proper relation to the whole, until at last they had the entire farm business analyzed, its strong points displayed, its weak points disclosed. The extension man had learned some of the methods of farming for that locality: the farmer had learned some of the methods used in studying farm business. Each felt he had spent a profitable hour. But when they parted it was the extension man who felt the real thrill of pleasure from the meeting. For the farmer grasped his hand and said, "Good-bye, sir; I'm glad we met; you've made me think." * * *

Shall we miss the thought—fail to get the lesson? As teachers of men, can we do anything mightier than to set moving chains of thought in the minds of others? Is our work to be measured by the miles we cover, the meetings we attend, the people we address? Or, since right action is based on correct thinking, is it not rather to be measured by the minds that are reached, the brains that are stimulated, the constructive thinking that is actually accomplished?—S. B. Cleland.

A WOMAN COUNTY AGENT.

The farm bureau of Erie County, N. Y., has employed a woman county agent in home economics extension work for about two years. Miss Sarah Pettit, the present agent, realizes the necessity of reaching individual women through groups, so her major project is the organization and development of home economics clubs in the small towns and rural communities of the county. When invited to assist, it is her custom to go into a community to conduct a three-day cookery demonstration school, presenting meat and meat substitutes the first day, bread and the uses of bread dough the second, and cakes and icings the third day.

At the close of the session on the third day those who are interested in this work organize into a club and decide on the time and place for the next meeting. These clubs choose their own subjects for programs, and members prepare the various papers, talks, or demonstrations. It is urged that every club give special attention to some local matter of community interest, such as better town sanitation, obtaining a community house, developing better rural schools, or the like. Through their club the members develop individual initiative in a manner which could not possibly be done through lecture and demonstration work alone. There are at the present time 30 clubs in the county, with a total membership of over 1,000 women, paying annual membership fees of 25 cents each.

During the summer, when the agricultural department of the farm bureau is holding field meetings in the different sections of the county the department of home economics holds at the same time special meetings for the women. In so far as it is feasible, demonstrations are given showing the housewife the use of the products which are under discussion in the men's session. During the past summer demonstrations in the preparation of potatoes were given at the potato field meetings, the preparation and use of dairy products at the dairy meetings, and the preparation and use of poultry products at the poultry field meetings.

WITH THE COUNTY AGENTS.

PROBLEMS AND PLAN OF WORK IN SANDUSKY COUNTY, OHIO.

County Agent Egbert and State County Agent Leader Bush, assisted by the officers and committeemen of the Sandusky County, Ohio, Farm Bureau, made out the following statement of the agricultural problems of the county, the general improvement program, and the projects to which immediate attention is to be given. It was sent out as a circular to each member of the farm bureau. The plan is an adaptation of one now general in New York in county-agent work and is an especially effective way of getting before the members of the farm bureau supporting the work the needs of the county and the plans that are being adopted to meet those needs.

PROBLEMS:

- I. Soils.
    - (a) Acidity—need of lime.
    - (b) Infertility—need of manure, chemicals, legumes.
    - (c) Lack of humus—live stock, green-manure crops.
    - (d) Need of drainage.
    - (e) Poor tilth.
- II. Crops.
    - (a) Failure of legumes—clover, vetch, alfalfa.
    - (b) Low yields and poor quality of hay.
    - (c) Control of insects, diseases, and weeds.
    - (d) Adaptation of crops—variety and quality of seed.
- III. Live stock.
    - (a) Low producing, scrub stock.
    - (b) Unintelligent feeding—calves and cows.
    - (c) Too frequent production of milk at a loss.
    - (d) Lack of knowledge of performance.
- IV. General farm and community.
    - (a) Inefficient farm organization.
    - (b) Inadequate community organization and cooperation.
    - (c) Lack of crop standardization.
    - (d) Poor and insufficient marketing facilities.

PROGRAM OF WORK (PERMANENT):

- I. Systematic soil improvement through—
    - (1) Field demonstrations of the value of lime.
    - (2) Field tests of chemicals.
    - (3) Promotion of growth of legumes.
- II. Better paying crops through—
    - (1) Demonstrations of the growth of legumes.
    - (2) Hay seeding and fertilizer tests.
    - (3) Demonstrations of the control of insects and diseases.
    - (4) Varietal tests of the more important field crops.
- III. A more profitable live stock industry through—
    - (1) Breeders' associations to improve stock.
    - (2) Dairy-barn tests of home-grown feed stuffs.
    - (3) Cow-testing associations.
    - (4) Official testing and individual records.
    - (5) Demonstration to control live-stock diseases.
- IV. Better farm organization and community cooperation through—
    - (1) Associations to standardize the leading cash crops.
    - (2) Cooperation with town boards of trade to open up new markets.
    - (3) Annual farm-management demonstration analyses.

Project Work for 1916:

I. Object—To demonstrate the value of lime and phosphorus.
    Means at least one test in each township. Lime, lime and phosphorus, check.

II. Object—To increase acreage of legumes in county.
    Means (a) At least one field test of alfalfa in each township.
    (b) At least one test of soy beans in each township.

III. Object—(a) To improve the oat and wheat crop.
    Means ten demonstrations to control oat or wheat smut.
    (b) To improve the potato crop.
    Means ten demonstrations of treatment of seed for scab, also ten demonstrations in spraying for blight.

IV. Object—To improve the yield and quality of corn crop.
    Means tests of varieties of seed corn; also seed-corn germination tests in schools through cooperation with school superintendents and teachers.

V. Object—Demonstrations to improve the live-stock industry in Sandusky County.
    Means holding feed tests, organizing cow-testing associations, etc.

VI. Object—To demonstrate the most profitable system of farm management.
    Means at least sixty farm-business analyses.

VII. Object—Better cooperation.
    Means better and more complete organization of farm-improvement association, and membership campaign.

Such a plan makes for accomplishment. Members, officers, and agents knowing that the bureau activities have taken definite direction will be more ready to carry the work along with zeal.

WORK OF COUNTY AGENTS WITH SWEET CLOVER.

Sweet clover (Melilotus), which a few years ago was almost universally despised as a worthless weed, has been receiving considerable attention by county agents. Judging from the reports of the agents, the plant has found a permanent and by no means unimportant place among the useful farm crops under certain conditions.

A. E. Lovett, county agent in Crook County, Oreg., has had a sweet-clover project for the past two years. In his annual report he says: "The demonstrations with sweet clover (*Melilotus alba*) prove the crop a valuable one both for pasture and hay. It has done well on irrigated and unirrigated land and also on lands so covered with black alkali that no crop except 'salt grass' was produced." On a 20-acre demonstration field of heavy, sandy loam, bottom land covered with black alkali which was seeded in April, 1915, there were pastured from June 1 until October 1, 18 to 28 head of calves, cows, and horses. Very little rain fell during April and none after that date and the field received no irrigation water. On irrigated land the results were even better. From a 17-acre demonstration field seeded in June, 1914, with oats as a cover crop, in September 1½ tons of hay per acre was harvested, after which the aftermath was pastured for about a month, and in June, 1915, 1½ tons of hay per acre was cut, after which the seed crop was harvested in October, the yield of seed amounting to 4,200 pounds. Four and a half tons of straw remained after the seed was thrashed, and in December, when the report was rendered, a band of 200 ewes had consumed more than half of this straw.

Equally good reports come from Wyoming, South Dakota, Arizona, and other Western States. James A. Armstrong, county agent in Maricopa County, Ariz., found a market in California for sweet-clover seed (*Melilotus indica*), which had heretofore been a worthless by-product of the wheat thrashing. Last fall nine carloads of the seed were shipped to California, where it is grown in orchards for green-manuring purposes.

In Fremont County, Wyo., A. L. Campbell had a sweet-clover seed project last year. One demonstration field of 9½ acres yielded 3,950 pounds of seed. The price of the seed in the county was 13 cents. This yielded a return of $53.95 per acre to the farmers. As a result of this project 16,500 pounds of sweet-clover seed was harvested, of which more than two-thirds had been marketed at the time the report was rendered. Four thousand pounds of this was marketed locally through the Farmers' Exchange Bulletin. The total money value of the crop approximated $2,145.

Several of the county agents in Illinois have conducted sweet-clover demonstrations, some of which have been in progress for the past three years. L. W. Wise, county agent in Iroquois County, says in his annual report that "34 of the 260 members of the Soil and Crop Improvement Association have sweet-clover fields. Four of these are on alkali land and have proven very successful, much more so than any other legumes that have been tried. Where sweet clover has been seeded on acid soil without limestone and inoculation it has failed." Roy Bishop, county agent in Livingston County, has 180 demonstration fields of sweet clover. The demonstrations are planned to show the value of inoculation, adaptability to soil types, methods of harvesting, and value as pasture, hay, ensilage, and for soil improvement. These demonstrations have been so successful and have attracted so much attention that hundreds of farmers are sowing fields to sweet clover.

Summarizing the annual reports of the county agents, it is found that 173 county agents in 26 States report 1,685 demonstration fields of sweet clover, involving a total acreage of 13,126.

WORK OF COUNTY AGENTS WITH OAT SMUT TREATMENT.

One of the most important projects of county agent work in 1915 was the treating of seed oats for smut. Of 370 county agents sending in annual reports in 1915, 146 reported 22,704 farms on which seed oats were treated for smut at their suggestion. Of these, 142 reported a total of 707,476 acres sown with treated seed under their direction or at their suggestion. In order to bring about the adoption of this practice, 101 agents report 2,854 oat-smut control demonstration fields or plats. Sixty-nine of these agents, realizing the importance of reaching neighboring farmers through field meetings, held a total of 893 meetings, attended by 18,964 farmers. Some of these meetings were held in the spring to demonstrate how to treat the seed, and others were held just before harvest to count smutted heads on demonstrations and to observe the effects of the treatment.

As a result of a series of demonstrations showing how to treat seed oats for smut, held by County Agent Leaming in Nicollet County, Minn., it is estimated that 180 farmers who treated the seed oats for 1,720 acres practically eliminated the smut, though fields from untreated seed showed about 5 per cent of smutted heads.

Thirty-two county agents reported the average number of smutted heads found in counts made in a large number of fields sown with treated and untreated seed in their respective counties. The average of the percentages of smut in untreated fields reported by these 32 men was 14 per cent. This does not mean that the average amount of smut in all fields in these counties was 14 per cent, since the counts were frequently made to convince the oat growers having a great deal of smut that they ought to treat their seed oats; hence the fields in which the counts were made were likely to be those with more than the usual amount of smut. In spite of the large amount of smut usually found in untreated parts of demonstration fields, the average amount of smut found where treated seed was used was less than 1 per cent. Most of the agents report less than one-half of 1 per cent in treated parts, and others state that practically no smutted heads appeared where treated seed was used.

One Ohio agent, who reached his county too late last year to put on an oat-smut campaign, found one field which was damaged by smut to the extent of 53 per cent. Several other fields in the county showed from 15 per cent to 30 per cent of smut. Another Ohio agent reports that several counts made in fields where the seed was not treated showed from 10 per cent to 75 per cent of smutted heads.

An average of 19 per cent of smutted heads was found in 25 fields where counts were made in one township by County Agent Lauck of El Paso County, Colo. He is sending a personal letter to each farmer on whose farm a count was made, giving the percentage of smut found and at the same time calling attention to the loss in yield in dollars and cents, as well as urging that the farmer should treat his seed oats this year.

Thirty-three agents sent in estimates of the average increased yields resulting from the use of treated seed where the treatment was given at the suggestion or under the direction of the agents. The average of the increased yields, based on the records or careful estimates of each agent, is a little more than 8 bushels per acre.

This gain is probably considerably larger than the average results which could be obtained in the various counties if all farmers treated their seed oats, since the farmers who can be most easily persuaded to treat their seed must have had sufficient smut in their fields to convince them of the importance of finding a remedy. Since the smutted plants are shorter, farmers frequently overlook this disease unless a large amount of smut is present. On this account the majority of farmers, even where smut is quite prevalent, will inform the agent that there is no smut in their fields. The average farmer does not realize that the loss from oat smut in his field is likely to be practically as great as the percentage of smutted heads found in representative areas.

From 75 replies to a questionnaire sent to farmers by County Agent Wise, of Iroquois County, Ill., asking for the results of oat-smut treatment, 35 reported who had treated and 40 reported who had not treated. The difference in yield in favor of treating the seed was 5.2 bushels per acre. In an instance reported by County Agent Grannis, Will County, Ill., a farmer treated his seed oats for 15 acres and sowed 4 acres with untreated seed. All other conditions were the same; the two pieces were harvested and thrashed separately. The resultant crop from treated seed was 52 bushels per acre; from the untreated seed, 32 bushels per acre; a direct gain of 20 bushels per acre as a result of treating. There is big profit in the operation, for the cost of treating seed oats, including labor and material, is usually only about 2 or 3 cents per bushel, or from 5 to 10 cents per acre.

In Box Butte County, Nebr., County Agent Seidell reports that the smutted heads counted in 118 untreated fields showed an average of 7.8 per cent, while in the 16 fields where treated seed was used there showed less than one-half of 1 per cent. One of the cooperators in that county stated that he saved at least $150 by treating his seed oats.

The number of farmers treating their seed oats is increasing rapidly; in several counties it is becoming a common practice. In Will County, Ill., where but two farmers are reported as treating their oats for smut in 1913, there were about 1,500 farmers who treated their seed oats in 1915. In Grundy County, Ill., County Agent Demaree recommended a formula of 1 pint of formaldehyde to 40 gallons of water. At that rate 1 gallon of formaldehyde would treat about 640 bushels of oats, or enough to sow 213 acres at the rate of 3 bushels per acre. Inquiries made of various druggists in the county showed that 101 gallons of formaldehyde were sold, or enough to treat seed for 21,547 acres. County Agent Robbins, of Tazewell County, Ill., reports that data secured from the 15 drug stores in the county showed that the amount of formaldehyde sold by them in 1913 was 27 gallons; in 1914, 129 gallons, and in 1915, 339 gallons. The 1914 yields on 44 treated fields showed an average increase of 7 bushels per acre over those secured from the 97 untreated fields. Based on the formaldehyde sold in this county, it is estimated that 43,400 acres were sown with treated seed in 1915.

The reports from the county agents show that 707,476 acres of oats were grown in 1915 from seed treated at their suggestion. The resultant increase in yield, which averaged 8 bushels per acre in reported cases, was secured at an increase in cost of less than 10 cents per acre.

SOME STRIKING RESULTS OF COUNTY AGENT WORK IN ILLINOIS.

The use of ground limestone in growing legumes has, as a result of the work of the Illinois county agents, increased in many counties from a few cars annually to several hundred cars. The decrease in the number of failures in growing legumes, resulting from liming, led to a large increase in the acreage of clover and alfalfa.

The use of raw rock phosphate on soils where its application was found profitable has been increased in some counties from none to as much as 3,000 and even 6,000 tons annually.

The treatment of seed oats for smut increased from none in some counties to 40 per cent and even 60 per cent of the total oat acreage of the counties. The resulting increase in yield of from 3 to 7 bushels per acre on as much as 100,000 acres means a large saving at a very small cost for labor and formalin. In several counties this oat-smut control work has saved the farmers more than enough to pay the entire cost of having a county agent in the county.

The 1910 census revealed only 18,344 acres of alfalfa growing in Illinois, an average of less than 200 acres per county. In 1915, three years after the first two county agents began work, the 14 counties now having agents had about 100,000 acres growing, while in 1910 they had only about 5,000 acres. The increase in the counties having county agents appears to be much more rapid than in the adjoining counties. This rapid increase in the acreage of alfalfa has been brought about in spite of very unfavorable seasons. Increased alfalfa production is not only an aid to live-stock production but also a great help in soil improvement. Its use makes it possible to maintain or increase the present corn production and still increase the number of farm animals the farm can support.

The county agent in Tazewell County has assisted in organizing a County Percheron Association, which has held colt shows of educational value and three annual sales attracting buyers not only from all parts of the State of Illinois but from other States as well.—Report of State County Agent Leader W. F. Handschin.

WORK OF COUNTY AGENTS ON CORN.

Every State but one of the thirty-three Northern and Western States reported work on corn problems for 1915; but these problems are greatest in extent and importance in the Corn Belt. The selection of seed corn received most attention. A total of 1,729 demonstrations on selecting seed corn were reported, which was more than all other corn-demonstration work combined. These demonstrations were largely to teach the kind of seed to select and the methods of selecting from the standing corn. But much other work to provide farmers with good seed corn was instituted and supervised by the agents. A number of county farm bureaus, under the supervision of their agents, bought seed corn, fire dried, and stored it. This corn will be tested and offered for sale to farmers in their counties in the spring. County Agent Burrell, Warrick County, Ind., secured the cooperation of the rural schools by inducing them to hold a "Seed Corn Day." Each school spent a half day gathering seed corn from the fields in their districts. Forty-eight schools reported gathering 1,065 bushels. In the 33 Northern and Western States county agents reported that to their knowledge a total of 21,566 farmers selected seed, which planted a total of 516,056 acres.

One hundred and seventy-one agents reported 14,036 farmers testing seed corn for germination and 352,546 acres were planted with tested seed. Many farmers test their own seed at practically no expense. The value of planting tested seed corn varies, but numerous reports show that seed of a high percentage of germination is one of the most important factors in good yields. For example, the report of County Agent Miller, Portage County, Ohio, says:

> Corn taken from a crib from which seed corn was sold, but which had no special care to dry it before freezing weather, gave only 73 per cent of a stand and a yield of 292 pounds, as compared with 419 pounds from a full stand in rows of the same length planted with tested seed.

The introduction of improved varieties of corn ranked third in amount of work and importance. They were introduced to demonstrate the value of early maturing and heavier yielding sorts adapted to local climatic conditions. These improved varieties showed an increased yield of from 8 to 12 bushels per acre at no added cost save for harvesting and marketing the increased yield. The experience of North Dakota as reported by Director Cooper for 1915, illustrates the value of using selected seed and acclimated varieties. In the fall of 1914 a seed-corn campaign was conducted by the county agents so that in 1915, for the first time in the history of the State, practically the entire acreage was planted with home-grown seed. The average yield of all demonstration fields in the State was 34.35 bushels and that of adjoining fields was 26.95 bushels.

Agents have also done work on methods of storing seed corn, methods of corn cultivation, corn planting, ear-to-row breeding plats, in a few instances, in developing better sweet corn for canning purposes, and in the Western States in introducing the growing of corn. One hundred and seventy-one agents report 241,479 acres grown under their supervision. Fifty-six agents report an average resultant increased yield of 13 bushels per acre for all corn work.

AN INDIANA COMMUNITY COOPERATES TO CONTROL HOG CHOLERA.

In order to demonstrate the value of community effort in the control of hog cholera, Agent McFarland, Benton County, Ind., last June discussed the matter with several farmers of Oak Grove Township who were found favorable to the undertaking. A meeting was held at which a State specialist gave a talk on the control of hog cholera and the county agent explained what the proposed organization would attempt to do. The farmers present decided to form a hog-cholera preventative association, and officers were immediately elected. The county agent was invited to name the section men, each of whom had previously given consent to look after 4 square miles. The duty of these men was to report the presence of sick hogs to the club chairman, who communicates with the county agent. A visit to the threatened premises followed to diagnose the trouble and inspect the arrangements for quarantine and sanitation. The farm was placarded if cholera was found.

Though there were several outbreaks in 1915, only in one instance did the disease spread to a neighboring herd. The club has voted to continue the work with the same officers.

In this connection the following data are of interest: Number of hogs raised in Oak Grove Township in 1914, 3,001; number lost, 337. Number of hogs raised in 1915, 4,075; number lost, 151. Number vaccinated in 1914, 526; number vaccinated in 1915, 486.

It is thought that greater promptness and skill in vaccination were contributing factors in making so good a showing, but the outstanding feature is the practical demonstration of the benefit of community cooperation in the application of sanitary measures.

POTATO DEMONSTRATIONS.

During 1915 it is reported that potatoes were grown on 3,897 farms in the Northern and Western States from seed treated for scab at the suggestion of county agents. On 1,261 farms hill-selected seed was used in planting; on 3,785 farms the suggestions of county agents were followed in growing potatoes with a resultant average increase in yield, so far as yields were determined, of 45 bushels per acre. County agents conducted many demonstrations with a view to train farmers in recognition and control of potato diseases. For example, County Agent Krum, in Ramsey County, Minn., reports 18 cooperators treating seed with corrosive sublimate to control scab and Rhizoctonia. In Box Butte County, Nebr., on the check plats the cooperators obtained a yield from untreated seed potatoes somewhat infected with Fusarium wilt of 112 bushels to the acre, while the yield upon plats planted with treated seed was 189 bushels to the acre. The market price of this increased yield was $10.50 an acre. In Salt Lake County, Utah, the selection of seed potatoes free from Fusarium wilt was demonstrated by County Agent Evans and the disinfection of all seed was advocated. He reports an instance in which seed was obtained from a common source by three growers. One made rigid selection from his purchase and treated all seed used; the others did neither. The first man harvested 500 bushels per acre; the other men, 100 bushels per acre of lower quality, yet all were grown in the same neighborhood.

In Monroe County, N. Y., 28 cooperators demonstrated the control of late blight under direction of County Agent Toan. They gave the vines five sprayings and secured an average increase in yield of 60 bushels to the acre, worth $45 at digging time.

In Franklin County, N. Y., 37 cooperators working with County Agent Ross to control late blight obtained an average increase of 75 bushels to the acre.

For several years in Oneida County, Wis., potato-growing clubs have been organized by County Agent Juday having in view the development of business in the production of choice seed potatoes as well as high-class table stock. There was a good demand for certified seed from the 1914 crop, so last fall many more growers applied to the Wisconsin officials for certification. They will probably have 10,000 bushels of certified seed to offer the market.

Three hundred and sixty-five county agents made 192,230 farm visits in 1915.

GROUND-SQUIRREL ERADICATION IN NORTH DAKOTA.

It has been estimated that the loss through ground squirrels in North Dakota is from $3,000,000 to $5,000,000 annually. The North Dakota Agricultural Experiment Station, cooperating with the Biological Survey of the United States Department of Agriculture, last spring made plans to demonstrate a method of extermination that had proven successful the preceding year when given an experimental trial. The first demonstrations were given in counties where county agents are employed for their special instruction, and their cooperation secured. The extermination campaigns were undertaken with the county agents in charge. An ample supply of poison was secured through the North Dakota Experiment Station—4,800 ounces of strychnine alkaloid, being sufficient to use on 800,000 acres. This was distributed at cost to the farmers. As a result of the campaign the ground squirrels were exterminated from the above area. These demonstrations were so successful that the county commissioners or township boards of several other counties of the State, comprising in all over 10,000,000 acres, have since provided funds through general tax levy for carrying on the work of exterminating the ground squirrels within their boundaries.

This piece of work is one that means a great deal to the State, though it is not connected definitely with either the growing or the marketing of crops. It could not have been placed before the people effectively except through the activity of county agents. Its potential value amounts to several hundreds of thousands of dollars annually.

Animals to the number of 335,633 were given treatment by county agents, or at their suggestion, during 1915, as follows: Cows for tuberculosis, 8,110; cattle for blackleg, 34,851; hogs vaccinated for cholera (by agents), 88,688; hogs vaccinated for cholera (at the suggestion of agents), 203,384.

A COUNTY AGENT HELPS MARKET HAY.

During last fall County Agent McIntosh became satisfied that the supplies of marketable hay in Greene County, Ind., would, perhaps, reach 500 carloads. He began to study the various markets and the requirements of each. The best price prevailed in New England, where large bales were wanted, each to be tagged with the weight and fastened with three wires. He then turned to secure buyers to handle hay for that market and others to take such hay as would not be suitable to ship there. County Agent McIntosh made it known that the policy of the office was to establish a permanent market for Greene County products on the proposition of a square deal for both purchaser and seller. He secured free transportation about the county as an inducement for outside buyers to enter the field. The buyers came. Prices immediately advanced $2 or $2.50 a ton and 300 carloads of hay had already moved at the time of making his report. It is evident that to develop a wholesale hay market in any region, production must be so large as to yield a surplus of considerable magnitude, else buyers will not find it worth their while to enter. But when a surplus arises it is fundamentally important that a satisfactory sale of it be effected; in the long run production is controlled by profit. The package is not of least importance in direct selling and even in so bulky a product as hay the whim of the buyer is worthy of consideration.

Ninety farmers' exchanges were organized by the county agents in 1915, and did a business of $327,610.

The Mason County (Ill.) Farm Bureau has decided to buy clover and alfalfa seed for all members who wish to order that way. The bureau is to learn the number of bushels wanted and secure prices and samples from different dealers and firms. The local seed dealers are to have the preference at the business, but are expected to meet price for quality. Members are to send checks to the office—seed to be shipped direct—but bear on each sack the stamp of the bureau's approval.

County Agent Burrell, Warwick County, Ind., reports that farmers in 1915 increased their use of ground limestone more than eightfold. Their silo census showed a 50 per cent increase, and they also added to the acreage of legumes perhaps 4,000 acres.

County Agent Zimmer, Wexford County, Mich., has published his annual report as an attractive pamphlet illustrated with several cuts to show something of the bureau activities of the past year.

Circular No. 9 issued by the Kentucky Experiment Station describes a calcimeter devised by Prof. J. S. McHargue for the rapid determination of the agricultural value of samples of lime rock. The apparatus is cheap and portable; it is intended to meet the needs of county agents.

The value of all business done in 1915 by associations organized by county agents, or at their suggestion, amounted to $3,575,373.

Though corn is yet thought of as a new crop in Tillamook County, Oreg., County Agent Jones reports that there were 35 entries at the corn show last fall. The number of silos has doubled, too. Further, the stockmen have come together to form a cooperative stock-marketing association to dispose of the surplus live stock of the county.

Two hundred and fifteen thousand nine hundred and sixty acres of wheat were grown in 1915 following suggestions from county agents with an average resultant increase, so far as reported, of 8 bushels per acre.

For four years County Agent Reimer, of Jackson County, Oreg., has been urging farmers to make more extended use of irrigation. The past season was dry in Oregon. His story follows:

> At every fruit growers', farmers', and grange meeting I have tried to impress upon our people the necessity of irrigation for profitable production. Our plats have shown an increase in yield of 66 per cent of sudan grass on the irrigated plats over the unirrigated plats, an increase of 200 per cent of potatoes on the irrigated over the unirrigated plats, and an increase of 128 per cent of sugar beets due to irrigation. The largest yield of corn ever grown in this county was produced in our irrigated plats this year, and during a season when much of the corn in this county without irrigation was a total failure. Fortunately our farmers are now convinced of the need of irrigation, and two large irrigation canals are now in process of construction.

Fifteen thousand seven hundred and twelve farmers grew alfalfa for the the first time in 1915 at the suggestion of county agents.

Last summer the promotion of public drainage was one of the projects of County Agent Chapin, Marion County, Oreg. A survey was made of an area of about 44 square miles. The engineering work was done by the U. S. Department of Agriculture, the soil work by the Oregon Agricultural College. The drainage of this area will bring about 30,000 acres into full productivity which has been yielding only about one-fourth of a crop.

One thousand one hundred and twenty-seven associations for adults, having a membership of 42,908. were organized with the assistance of county agents in 1915.

FARM-MANAGEMENT DEMONSTRATIONS.

Mr. E. B. Brossard, farm-management demonstrator in Utah, reports:

> Out of six records which I took this week, five were taken from our account books placed with the farmers this last year. These books had in them all receipts and expenses and all had been totaled. This seems to me to indicate success with the farm-management demonstrations in teaching farmers to keep records. The next step which we desire to take in demonstration is to teach the farmer how to analyze his own business record after he has kept his accounts. We believe the farmers understand the analysis when made by us, but we wish them to actually make this analysis of their own business without our aid other than to offer them community averages for comparison.

It seems that under Mr. Brossard's guidance the Utah demonstration force is making progress toward the real goal of farm-management demonstration work. In many cases the work has been confused with investigations and demonstrators have thought that their mission was to discover something. Mr. Brossard seems to see, however, that his mission is to teach rather than to discover.

County Agent Johnson reports an experience in Bartholomew County, Ind., which rather typifies the real goal of the farm-management demonstration work. He states:

> The men securing the second year records were met with a hearty welcome, and the farmers, as a whole, seemed glad to have them come and assist in balancing up their year's business. As one farmer so aptly expressed it, "I tried a few years ago to keep an accurate account but was not able to continue it through the year owing to the rush of farm work. Since this farm management work has been started I know about what things an account should include and it is very easy for me to save my checks for money paid out and to list the things I have received money for. I am glad to have you help me balance up my year's business and will be anxiously waiting your return of the record."

A great many farmers have undertaken, with more or less zeal, to keep farm accounts, but for the want of a vision of the final form of the year's summary they have undertaken to do much that was not necessary and therefore have become discouraged before the year was ended. It is believed that if farmers once get in mind the few simple things that are necessary in summarizing their business for the year they will find it comparatively easy to keep the records. As previously stated, this is the goal of farm management demonstration work. Even though the farm management demonstrator enlists the active cooperation of all the county agents and other local leaders, it will be entirely impossible to reach any large number of farmers except to teach them how they themselves, with minor assistance on the part of county agents, may summarize, analyze, and readjust their business each year.

Two hundred and one county agents report having induced 4,602 farmers to keep some account of their operations.

County Agent Nelson, of Wahkiakum County, Wash., reports:

> This month I have taken 51 farm analysis records. The farmers seemed to be much interested in the work this year and are anxious to have their records taken again. Many more of them than last year are keeping farm accounts; still others have adopted better forms.

It is evident that Mr. Nelson is making good use of the farm-management demonstration work in connection with his county agent work, and that his farmers are speedily learning to keep track of their farm business.

The practice of using advanced agricultural students in connection with farm-management demonstration work is growing. Farm-Management Demonstrator Robertson, of Indiana, reports:

> Two seniors of Purdue University were used in taking records in Bartholomew County. Each student took 13 records. County Agent Johnson took 5. The students had been drilled two or three evenings in record taking before they started out. They were conscientious in making their records complete and accurate, and after the first day or so had very little trouble in getting all the necessary information. They seemed to be received well by the farmers,

so far as I could tell, and not a single instance was reported by them of a farmer being unfriendly to them or to the work. The letter sent out by County Agent Johnson announcing the resumption of the work for the second year seemed to have had a good effect, for many were waiting for us with such accounts as they had summarized.

It is believed that under reasonably favorable conditions if the students are selected and trained carefully they will fit in with this work very nicely. They are naturally ready to work practically for expenses and the experience they get out of it, thus enabling the State to get more for the money invested and at the same time train young men for extension work. One extension director has stated that he wishes all his extension specialists to be familiar with the farm-analysis method—apparently a wise suggestion. This seems to be good training for young men who wish to take up extension work in any form whatsoever.

BOYS' AND GIRLS' CLUB WORK.

The following report by a local club leader shows quite clearly the advantages to be secured by the home canning of club products when the local market is glutted with products:

> Market truck growing near Worthington, Ind., is confined almost exclusively to tomatoes and the local market is subject to ruinous competition at the height of the season. The earliest tomatoes retail for about 7 cents a pound while a few weeks later gardeners are literally giving tomatoes away. Last season the price on the Indianapolis market dropped to 25 cents a bushel. The tomato club boys were prepared to meet the situation in a businesslike manner. Four of them canned 1,576 No. 3 cans, and guaranteed on the label a "Solid Pack." Their gross receipts were $141.30; cost of production and of canning, $49.06; net profit, $92.24. In addition to the gross receipts these boys earned $236.25 for labor in canning and marketing which, added to the net profit and to the profit from the sale of fresh tomatoes, made an average profit of $94.39 each. Two of these boys were 15 years of age and the other two were 13.

The 1915 district championships for Indiana in the corn-club work have been awarded as follows:

District championships in Indiana corn-club work, 1915.

District.	Name.	Address.	Yield per acre.	Cost.
			Bushels.	
1	William H. Thompson [1]	Star City, Ind	89.96	$13.82
2	Arthur Trout [2]	Gaston, Ind	108.20	13.30
3	Ulis B. Hine	Lebanon, Ind	100.16	12.92
4	Curtis Shafer	Seymour, Ind	102.80	12.11
5	Fred Thomas [3]	Mount Vernon, Ind	125.84	11.52

[1] Won district championship in 1913, but was prevented by illness from taking the Washington trip which he won.

[2] Won district championship in 1914 and withdrew this season in favor of the boy who ran second in his district.

[3] State champion.

Of the 39 club members enrolled in the Bean Club of Huron County, Mich., 24 completed all requirements. The average yield per acre by these members was 24 bushels and 23 pounds, while the highest yield was 44 bushels and 45 pounds, made by Arthur Stacer. The championship was awarded to Martha Pawlowski who produced 36 bushels per acre at a net profit of $93.24. The average yield per acre of beans for Michigan during the last 11 years has been 11.2 bushels; in 1915 this dropped to 8.6 bushels.

Howard La France, potato-club champion for Michigan, 1915, secured a yield of 210 bushels and 22 pounds from his half-acre plat at a cost of $31.45, and with a net profit of $110.55. He sold 20 bushels of his potatoes for seed at $1.25 a bushel. During the period of heavy frosts experienced by Michigan during the latter part of August, he kept fires burning about his club plat, with the result that his crop was one of the few in that locality unaffected by frost.

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